

WHAT IS CLAIMED IS:

1. An optical disk for recording data comprising:
header fields which are provided on tracks of one
of a concentric form and spiral form and in each of
5 which an address indicating a position on the track is
previously recorded; and
recording fields which respectively follow said
header fields and in which preset data is recorded;
wherein the recording density of said header field
10 is lower than that of said recording field.
2. The optical disk according to claim 1, wherein
the address in said header field is recorded by use of
a pre-pit string and data in said recording field is
recorded by use of marks formed by phase changes.
- 15 3. The optical disk according to claim 2, wherein
the minimum pit length of the pre-pit in said header
field is larger than the minimum mark length of said
recording field.
- 20 4. The optical disk according to claim 1, wherein
said recording field includes grooves or lands which
are wobbled in a preset cycle, said header field has no
wobbled grooves or lands, the length of a portion in
which none of the wobbled grooves and lands exist due
to the presence of said field is an integral multiple
25 of a length corresponding to a wobbling cycle, and
a phase of wobbling in a portion in which the wobbled
grooves or lands are interrupted and a phase of

wobbling in a portion in which the wobbled grooves or lands re-start are equal to each other.

5. The optical disk according to claim 1, wherein a data recording form in said header field is a mark position form and a data recording form in said recording field is a mark edge form.

6. The optical disk according to claim 1, wherein a modulation code for data recorded in said header field is different from a modulation code for data recorded in said recording field.

10 7. The optical disk according to claim 1, wherein data is recorded in said header field according to a modulation code whose minimum pit (mark) length is three channel clocks period and data is recorded in said data field according to a modulation code whose minimum pit (mark) length is two channel clocks period.

15 8. The optical disk according to claim 1, wherein a pattern (AM) for detecting the address is recorded in said header field and the pattern is recorded in a plurality of portions in the same header field.

20 9. An optical disk recording method for recording data on an optical disk having header fields which are provided on tracks of one of a concentric form and spiral form and in each of which an address indicating a position on the track is previously recorded, and recording fields which respectively follow the header fields and in which preset data is recorded;

wherein data is recorded on the recording field with a recording density higher than the recording density of the header field.

10. The optical disk recording method according to
5 claim 9, wherein the address in said header field is recorded by use of a pre-pit string and data in said recording field is recorded by use of marks formed by phase changes.

11. The optical disk recording method according to
10 claim 10, wherein the minimum pit length of the pre-pit in said header field is larger than the minimum mark length of said recording field.

12. The optical disk recording method according to
claim 9, wherein said recording field includes grooves
15 or lands which are wobbled in a preset cycle, said header field has no wobbled grooves or lands, the length of a portion in which none of the wobbled grooves and lands exist due to the presence of said header field is an integral multiple of a length corresponding to a wobbling cycle, and a phase of wobbling in a portion in which the wobbled grooves or lands are interrupted and a phase of wobbling in a portion in which the wobbled grooves or lands re-start are equal to each other.

25 13. The optical disk recording method according to claim 9, wherein a data recording form in said header field is a mark position form and a data

recording form in said recording field is a mark.
edge system.

14. The optical disk recording method according to
claim 9, wherein a modulation code for data recorded in
5 said header field is different from a modulation code
for data recorded in said recording field.

15. The optical disk recording method according to
claim 9, wherein data is recorded in said header field
according to a modulation code whose minimum pit (mark)
10 length is three channel clocks period and data is
recorded in said data field according to a modulation
code whose minimum pit (mark) length is two channel
clocks period.

16. The optical disk recording method according to
claim 9, wherein a pattern (AM) for detecting the
address is recorded in said header field and the
pattern is recorded in a plurality of portions in the
same header field.

17. An optical disk apparatus for recording data
20 on an optical disk having header fields which are
provided on tracks of one of a concentric form and
spiral form and in each of which an address indicating
a position on the track is previously recorded, and
recording fields which respectively follow the header
25 fields and in which preset data is recorded and
reproducing data recorded on the optical disk,
comprising:

first reproduction means for reproducing data in
the header field;

second reproduction means for reproducing data in
the recording field;

5 determining means for determining whether a signal
now reproduced is a signal from the header field or
a signal from the recording field; and

10 processing means for reproducing data by use of
said first reproduction means when said determining
means determines that the signal now reproduced is
a signal from the header field and reproducing data by
use of said second reproduction means when said
determining means determines that the signal now
reproduced is a signal from the recording field.

15 18. The optical disk apparatus according to
claim 17, wherein data is recorded in the header field
based on a mark position form and data is recorded in
the recording field based on a mark edge form.

20 19. The optical disk apparatus according to
claim 17, wherein data is recorded in the header field
based on a mark position form, data is recorded in the
recording field based on a mark edge form, said first
reproduction means reproduces a signal of the mark
position form and said second reproduction means
reproduces a signal of the mark edge form.

25 20. The optical disk apparatus according to
claim 17, wherein a modulation code for data recorded

in the header field is different from a modulation code for data recorded in the recording field and said first and second reproduction means demodulate data based on different modulation codes.

5 21. The optical disk apparatus according to claim 17, wherein said first reproduction means reproduces data by a level slice signal process and said second reproduction means reproduces data by a PRML signal process.

10 22. An optical disk apparatus for recording data on an optical disk having header fields which are provided on tracks of one of a concentric form and spiral form and in each of which an address indicating a position on the track and at least one pattern (AM) for detecting the address are previously recorded, and recording fields which respectively follow the header fields and in which preset data is recorded and reproducing data recorded on the optical disk, comprising:

15 first reproduction means for reproducing data in the header field;

 second reproduction means for reproducing data in the recording field;

20 recording means for recording data in the recording field;

 first detection means for detecting the pattern used for detecting the address recorded in the header

field based on a reproduction signal from said first reproducing means;

second detection means for detecting the address recorded in the header field based on a detection process of said first detecting means; and

processing means for reproducing data in a corresponding portion of the recording field by use of said second reproduction means or recording data in a corresponding portion of the recording field by use of 10 said recording means when the address detected by said second detection means comes to an access position.

23. The optical disk apparatus according to claim 22, wherein data is recorded in the header field based on a mark position form and data is recorded in 15 the recording field based on a mark edge form.

24. The optical disk apparatus according to claim 22, wherein data is recorded in the header field based on a mark position form, data is recorded in the recording field based on a mark edge form, said first 20 reproduction means reproduces a signal of the mark position form and said second reproduction means reproduces a signal of the mark edge form.

25. The optical disk apparatus according to claim 22, wherein a modulation code for data recorded in the header field is different from a modulation code 25 for data recorded in the recording field and said first and second reproduction means demodulate data based on

different modulation codes.

26. The optical disk apparatus according to
claim 22, wherein said first reproduction means
reproduces data by a level slice signal process and
5 said second reproduction means reproduces data by
a PRML signal process.

27. An optical disk apparatus for recording data
on an optical disk having header fields which are
provided on tracks of one of a concentric form and
10 spiral form and in each of which an address indicating
a position on the track and at least one pattern (AM)
for detecting the address are previously recorded, and
recording fields which respectively follow the header
fields and in which preset data is recorded and
15 reproducing data recorded on the optical disk,
comprising:

a first reproduction section for reproducing data
in the header field;

20 a second reproduction section for reproducing data
in the recording field;

a recording section for recording data in the
recording field;

25 a first detection section for detecting the
pattern used for detecting the address recorded in the
header field based on a reproduction signal from said
first reproduction section;

a second detection section for detecting

the address recorded in the header field based on the result of detection of said first detection section; and

5 a processing section for reproducing data in a corresponding portion of the recording field by use of said second reproduction section or recording data in a corresponding portion of the recording field by use of said recording section when the address detected by said second detection section comes to an access position.

10 28. The optical disk apparatus according to claim 27, wherein data is recorded in the header field based on a mark position form and data is recorded in the recording field based on a mark edge form.

15 29. The optical disk apparatus according to claim 27, wherein data is recorded in the header field based on a mark position form, data is recorded in the recording field based on a mark edge form, said first reproduction section reproduces a signal of the mark position form and said second reproduction section reproduces a signal of the mark edge form.

20 25 30. The optical disk apparatus according to claim 27, wherein a modulation code for data recorded in the header field is different from a modulation code for data recorded in the recording field and said first and second reproduction sections demodulate data based on different modulation codes.

31. The optical disk apparatus according to
claim 27, wherein said first reproduction section
reproduces data by a level slice signal process and
said second reproduction section reproduces data by
5 a PRML signal process.